

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Canceled) Claim 1 was previously canceled.
2. (Canceled) Claim 2 was previously canceled.
3. (Previously Presented) A polishing method for polishing a film of an object to be polished having a substrate, an insulating film formed over the substrate, interconnection grooves formed in the insulating film, and an interconnection layer film, formed inside and outside of the interconnection grooves comprising:

supplying a processing solution over the surface to be polished at least substantially parallel to that surface and removing by polishing the interconnection film formed outside of the interconnection grooves by a shear stress due to the processing solution;

wherein the object to be polished is an object having contact holes communicating with the interconnection grooves formed in the insulating film and having portions of an interconnection layer formed buried inside the contact holes as well;

using a processing solution containing at least a chelating agent as the processing solution;

chelating the surface part of the film by the chelating agent to form a chelate film;

removing by polishing preferentially projecting portions of the chelate film by the shear stress of the processing solution; and

repeatedly again forming a chelate film on the surface parts of the film exposed at the projecting portions and removing by polishing preferentially the projecting portions of the chelate film to flatten the film.

4. (Previously Presented) A polishing method for polishing a film applied to an object having an insulating film formed over a substrate, interconnection grooves formed in the insulating film, said film located inside said grooves and above said insulating film, said method comprising:

supplying a processing solution over the surface to be polished at least substantially parallel to that surface and removing by polishing projecting portions of film formed outside of the interconnection grooves by a shear stress due to the application of the processing solution

wherein said processing solution contains at least a chelating agent;
chelating the surface part of the film by the chelating agent to form a chelate film;
removing projecting portions of the chelate film by the shear stress of the application of the processing solution; and

repeatedly forming a chelate film on the surface parts of the film exposed at the projecting portions and removing by polishing the projecting portions of the chelate film to flatten the film.

5. (Original) A polishing method as set forth in claim 4, further comprising using a polishing solution further including an oxidizing agent as said polishing solution and

oxidizing the surface part of the film by said oxidizing agent and chelating the obtained oxide by said chelating agent to form a chelate film.

6. (Currently Amended) A polishing method as set forth in claim 4, further comprising using a polishing solution further including a surface-active agent as said polishing solution and

removing said chelate as micelles covered by said surface-active agent when removing by polishing ~~from~~ projecting portions of said chelate film by the shear stress by said processing solution.

7. (Previously Presented) A polishing method as set forth in claim 4, further comprising:

supplying an electrolytic solution at least between said surface to be polished and a cathode member arranged facing said surface and substantially parallel to said surface while supplying voltage with the cathode member as a cathode and said film as an anode to remove projecting portions of said film by the shear stress of the applied electrolytic solution to flatten the surface.

8. (Original) A polishing method as set forth in claim 7, wherein the film comprises a copper film.

9. (Previously Presented) A polishing method as set forth in claim 7, further comprising using as the object to be polished an object having a substrate, an insulating film formed over said substrate, interconnection grooves formed in the insulating film, and an interconnection layer buried inside the interconnection grooves and formed over the surface outside the interconnection grooves, and

removing by polishing the interconnection layer, formed outside of the interconnection grooves to flatten the surface.

10. (Previously Presented) A polishing method as set forth in claim 9, wherein the object to be polished is an object having contact holes communicating with the interconnection grooves formed in the insulating film and having an interconnection layer formed inside the contact holes.

11. (Currently Amended) A polishing method for an object having a film on a surface to be polished, comprising:

supplying an electrolytic solution at least between said surface to be polished and a cathode member arranged facing said surface and substantially parallel to said surface while supplying voltage with the cathode member as a cathode and said film as an anode to remove by projecting portions of said film by the shear stress of the applied electrolytic solution to flatten the surface, said method further comprising:

using an electrolytic solution containing at least a chelating agent as the electrolytic solution;

supplying a voltage with said cathode member as a cathode and said film as an anode to oxidize the surface of the film by anodic oxidation;

chelating the surface part of the oxidized film by the chelating agent to form a chelate film;

removing projecting portions of the chelate film by the shear stress of the application of the electrolytic solution; and

repeatedly forming a chelate film on the surface parts of the film exposed at the projecting portions and removing by polishing the projecting portions of the chelate film to flatten the an interconnection layer.

12. (Previously Presented) A polishing method as set forth in claim 11, further comprising

using an electrolytic solution further including a surface-active agent as said electrolytic solution and

removing said chelate as micelles covered by said surface-active agent when removing by polishing projecting portions of said chelate film by the shear stress by said electrolytic solution.

Claims 13 – 35 (Canceled) These claims were previously canceled.

36. (Previously Presented) A polishing method as set forth in claim 11, wherein the object to be polished is an object having contact holes communicating with the interconnection grooves formed in the insulating film and having an interconnection layer formed buried inside the contact holes as well.

37. (Previously Presented) A polishing method as set forth in claim 11 wherein the film comprises a copper film.

38. (Previously Presented) A polishing method as set forth in claim 11, further comprising using as the object to be polished an object having a substrate, an insulating film formed over said substrate, interconnection grooves formed in the insulating film, and said film formed inside said grooves and above said insulating film, said method comprising:

removing by polishing the film portion formed outside of the interconnection grooves to flatten the surface.

39. (Currently Amended) A polishing method as set forth in claim 11 ~~claim 15~~, wherein the object to be polished further has contact holes communicating with the interconnection grooves formed in the insulating film and having the interconnection layer formed buried inside the contact holes as well.

40. (Currently Amended) A method of polishing comprising the steps of:

providing a device including an insulating film having interconnection grooves formed therein and a conductive film formed over the insulating film; and

applying a polishing fluid over the conductive film and directing the fluid in a direction substantially parallel to a surface of the conductive film via a channel formed between the conductive film and a structure substantially parallel to the insulating film;

polishing the conductive film formed outside of the interconnection grooves by a shear stress due to the polishing fluid.

41. (Currently Amended) The method of polishing of claim 40, wherein the structure includes a cathode.